

09/257,208
AM9-98-093

2

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A system for unobtrusively detecting a subject's level of interest in media content, comprising:
 - means for detecting a subject's attention to said media content;
 - means for measuring said subject's relative arousal level; and
 - means for determining said level of interest based on information regarding said subject's arousal level and said subject's attention to said media content,

wherein said means for determining said level of interest adaptively infers said level of interest.
2. (Previously presented) The system according to claim 1, wherein said detecting means includes means for determining a target to which a gaze of the subject is directed.
3. (Previously presented) The system according to claim 2, wherein said determining means further includes means for determining a duration of fixation time of said gaze.
4. (Previously presented) The system according to claim 3, wherein said measuring means includes means for determining whether the subject is attending to the media content.
5. (Previously presented) The system according to claim 4, wherein said measuring means further includes means for measuring the subject's facial gestures.
6. (Previously presented) The system according to claim 5, wherein said measuring means further includes means for measuring the subject's head gestures.

09/257,208
AM9-98-093

3

7.(Previously presented) The system according to claim 6, wherein said measuring means further includes means for measuring the subject's speech.

8.(Previously presented) The system according to claim 1, wherein said measuring means includes means for measuring the subject's facial gestures.

9.(Previously presented) The system according to claim 1, wherein said measuring means includes means for measuring the subject's head gestures.

10.(Previously presented) The system according to claim 1, wherein said measuring means includes means for measuring the subject's speech.

11.(Previously presented) The system according to claim 1, wherein said level of interest produced provides relevance feedback associated with said subject to a manager of said media content.

12. (Currently Amended) A system for unobtrusively detecting an object of a subject's interest in media content, comprising:

means for detecting an object of said subject's attention;

means for measuring the subject's relative arousal level; and

means for determining said level of interest based on information regarding said subject's arousal level and said subject's attention to said media content,

wherein said means for determining said level of interest adaptively infers said level of interest.

13.(Previously presented) The system according to claim 12, wherein said detecting means includes means for determining a target to which a gaze of the subject is directed.

09/257,208
AM9-98-093

4

14.(Previously presented) The system according to claim 13, wherein said determining means further includes means for determining a duration of fixation time of said gaze.

15.(Previously presented) The system according to claim 14, wherein said measuring means includes means for determining whether the subject is attending to the media content.

16.(Previously presented) The system according to claim 15, wherein said measuring means further includes means for measuring the subject's facial gestures.

17.(Previously presented) The system according to claim 16, wherein said measuring means further includes means for measuring the subject's head gestures.

18.(Previously presented) The system according to claim 17, wherein said measuring means further includes means for measuring the subject's speech.

19.(Previously presented) The system according to claim 12, wherein said measuring means includes means for measuring the subject's facial gestures.

20.(Previously presented) The system according to claim 12, wherein said measuring means includes means for measuring the subject's head gestures.

21.(Previously presented) The system according to claim 12, wherein said measuring means includes means for measuring the subject's speech.

22.(Previously presented) The system according to claim 12, wherein said level of interest produced provides relevance feedback associated with said subject to a manager of said media content.

09/257,208
AM9-98-093

5

23. (Currently amended) A method of unobtrusively detecting a subject's level of interest in media content, comprising:

detecting a subject of said subject's attention;

measuring a subject's relative arousal level; and

determining said level of interest based on information regarding said subject's arousal level and said subject's attention to said media content,

wherein said determining said level of interest comprises adaptively inferring said level of interest.

24.(Previously presented) The method according to claim 23, wherein said detecting includes determining a target to which a gaze of the subject is directed.

25.(Previously presented) The method according to claim 24, wherein said determining further includes determining a duration of fixation time of said gaze.

26.(Previously presented) The method according to claim 25, wherein said measuring includes determining whether the subject is attending to the target information.

27.(Previously presented) The method according to claim 26, wherein said measuring further includes measuring the subject's facial gestures.

28.(Previously presented) The method according to claim 27, wherein said measuring further includes measuring the subject's head gestures.

29.(Previously presented) The method according to claim 28, wherein said measuring further includes measuring the subject's speech.

30.(Previously presented) The method according to claim 23, wherein said measuring includes

09/257,208
AM9-98-093

6

measuring the subject's facial gestures.

31.(Previously presented) The method according to claim 23, wherein said measuring includes measuring the subject's head gestures.

32.(Previously presented) The method according to claim 23, wherein said measuring includes measuring the subject's speech.

33.(Previously presented) The method according to claim 23, wherein said level of interest produced provides relevance feedback associated with said subject to a manager of said media content.

34. (Currently amended) A method of unobtrusively detecting the object of a subject's interest in media content, comprising:

detecting the object of said subject's attention;

measuring the subject's relative arousal level; and

determining said level of interest based on information regarding the subject's arousal level and said subject's attention to said media content,

wherein said determining said level of interest comprises adaptively inferring said level of interest.

35.(Previously presented) The method according to claim 34, wherein said detecting includes determining a target to which a gaze of the subject is directed.

36.(Previously presented) The method according to claim 35, wherein said determining further includes determining a duration of fixation time of said gaze.

37.(Previously presented) The method according to claim 36, wherein said measuring includes

09/257,208
AM9-98-093

7

determining whether the subject is attending to the target information.

38.(Previously presented) The method according to claim 37, wherein said measuring further includes measuring the subject's facial gestures.

39.(Previously presented) The method according to claim 38, wherein said measuring further includes measuring the subject's head gestures.

40.(Previously presented) The method according to claim 39, wherein said measuring further includes measuring the subject's speech.

41.(Previously presented) The method according to claim 34, wherein said measuring includes measuring the subject's facial gestures.

42.(Previously presented) The method according to claim 34, wherein said measuring includes measuring the subject's head gestures.

43.(Previously presented) The method according to claim 34, wherein said measuring includes measuring the subject's speech.

44.(Previously presented) The method according to claim 34, wherein said level of interest produced provides relevance feedback associated with said subject.

45. (Currently Amended) A method for detecting a person's level of interest in media content, comprising:

assessing whether a person is attending to the media content, to produce first data;

assessing a person's relative arousal level with regard to the media content, to produce second data;

09/257,208
AM9-98-093

8

determining said level of interest in said media content based on said first and second data; and

communicating said level of interest as feedback about the media content to a manager of said media content,

wherein said determining said level of interest comprises adaptively inferring said level of interest.

46.(Previously presented) The method according to claim 45, wherein said assessing includes determining a target to which a gaze of the person is directed.

47.(Previously presented) The method according to claim 46, wherein said assessing further includes determining a duration of fixation time of said gaze.

48.(Previously presented) The method according to claim 45 wherein said assessing includes determining whether the person is attending to the media content.

49.(Previously presented) The method according to claim 45 wherein said assessing includes measuring a person's facial gestures.

50.(Previously presented) The method according to claim 45 wherein said assessing includes measuring the person's head gestures.

51.(Previously presented) The method according to claim 45 wherein said assessing includes measuring the subject's speech.

52.(Previously presented) The method according to claim 45 wherein said level of interest produced provides relevance feedback associated with said subject.

09/257,208
AM9-98-093

9

53. (Currently Amended) A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for computer-implemented unobtrusive detection of a subject's level of interest in media content, said method comprising:

detecting an object of said subject's attention;

measuring a subject's relative arousal level; and

determining said level of interest based on information regarding said subject's arousal level and said subject's attention,

wherein said determining said level of interest comprising adaptively inferring said level of interest.

54. (Currently Amended) A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for computer-implemented unobtrusive detection of a subject's level of interest in media content, said method comprising:

assessing whether a subject is attending to the media content, to produce first data;

assessing a subject's relative arousal level with regard to the media content, to produce second data;

determining said level of interest in said media content based on said first and second data; and

communicating said level of interest as feedback about the media content to a manager of said media content,

wherein said determining said level of interest comprises adaptively inferring said level of interest.

55. (Currently Amended) A system for unobtrusively measuring a subject's interest in media content, comprising:

a detector for detecting a subject's attention to said media content;

09/257,208
AM9-98-093

10

a measuring device which measures a subject's arousal level; and
an inference engine which infers subject's interest level based on information regarding
said subject's arousal level and said subject's attention to said media content,
wherein said inference engine adaptively infers said interest level.

56. (Previously presented) The method according to claim 53, wherein said physical attribute of
said subject includes at least one of a facial gesture, a head gesture, a blink rate and blink
duration, a relative position of an eyebrow, and a relative position of a mouth corner.

57. (Previously presented) The method according to claim 56, wherein said physical attribute of
said subject further includes at least one of an audio utterance, a gaze fixation density, a pupil
size, upper body movement.

58. (Previously presented) The method according to claim 56, wherein additional media content
is provided in real time to said subject based upon the inferred level of interest.

59. (Previously presented) The method according to claim 54, wherein said physical attribute of
said subject includes at least one of a facial gesture, a head gesture, a blink rate and blink
duration, a relative position of an eyebrow, and a relative position of a mouth corner.

60. (Previously presented) The method according to claim 59, wherein said physical attribute of
said subject further includes at least one of an audio utterance, a gaze fixation density, a pupil
size, and an upper body movement.

61. (Previously presented) The method according to claim 59, wherein additional media content
is provided in real time to said subject based upon the inferred level of interest.

62. (Currently amended) The system according to claim 1, wherein said determining means uses

09/257,208
AM9-98-093

11

a Bayesian Belief Network to determine ~~adaptively infers~~ said level of interest.

63. (Currently amended) The system according to claim 1, wherein said determining means uses at least one of a Bayesian Belief Network, a decision tree and a neural network to determine ~~determining~~ said level of interest.

64. (Previously presented) The system according to claim 1, wherein said determining means comprises a means for adaptively learning said subject's level of interest in said media content.

65. (Previously presented) The system according to claim 1, wherein said detecting means outputs information regarding said subject's attention to said determining means, and said measuring means outputs said subject's arousal level to said determining means.

66. (Previously presented) The system according to claim 1, wherein said measuring means measures said subject's arousal level after said detecting means detects said subject's attention.

67. (Previously presented) The system according to claim 1, wherein said system comprises an information presentation technology system in which more information is presented regarding media content corresponding to a high level of interest and less information is presented regarding media content corresponding to a low level of interest.